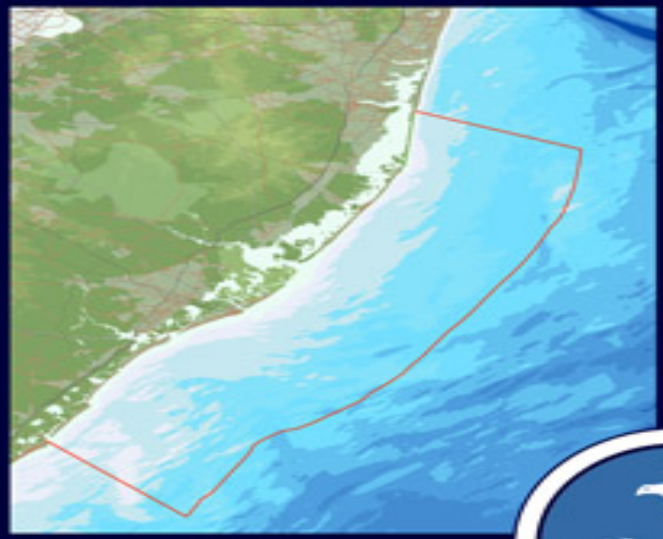
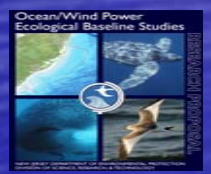
Ocean/Wind Power Ecological Baseline Studies



NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF SCIENCE, RESEARCH, & TECHNOLOGY

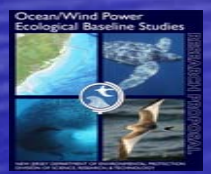


Ocean / Wind Power Ecological Baseline Studies

Interim Report

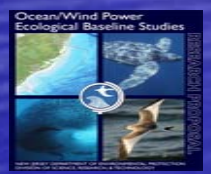
Interested Party Group Meeting
March 5, 2009

Gary A. Buchanan, Ph.D.
Bureau of Natural Resources Science
Division of Science, Research & Technology
NJDEP



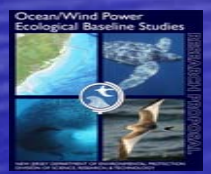
Acknowledgments – Technical Review Committee

- Coastal Management – Kevin Hassell
- Fish & Wildlife – ENSP
  - Dave Golden, Ph.D.
  - Sharon Petzinger
  - Jeanette Bowers
- Marine Fisheries - Don Byrne
- Wildlife Management - Ted Nichols



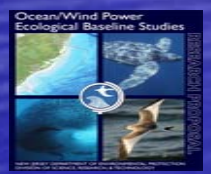
Acknowledgements (cont) - TRC

- NJGS – Jane Uptegrove
- Permit Coordination – Ken Koschek
- Land Use Management – Mark Godfrey
- Science, Research & Technology
  - Joe Bilinski
  - Joel Pecchioli (SRP)
  - Gail Carter



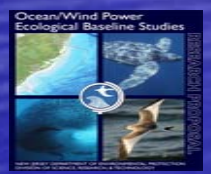
Acknowledgements (cont) - TRC

- USFWS - Carlo Popolizio & Doug Forsell
- NOAA/NMFS
  - Gordon Waring, Ph.D.
  - Debra Palka, Ph.D.
  - Karen Greene
- Minerals Management Service - Will Waskes



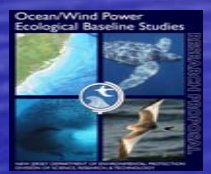
Project Objectives

- Address Natural Resource portion of Blue Ribbon Panel Recommendation No. 4:
  - "Baseline data should be collected regarding the distribution, abundance, and migratory patterns of avian species, fish, marine mammals and turtles in the offshore area where development may be feasible."



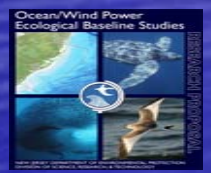
Specific Objectives

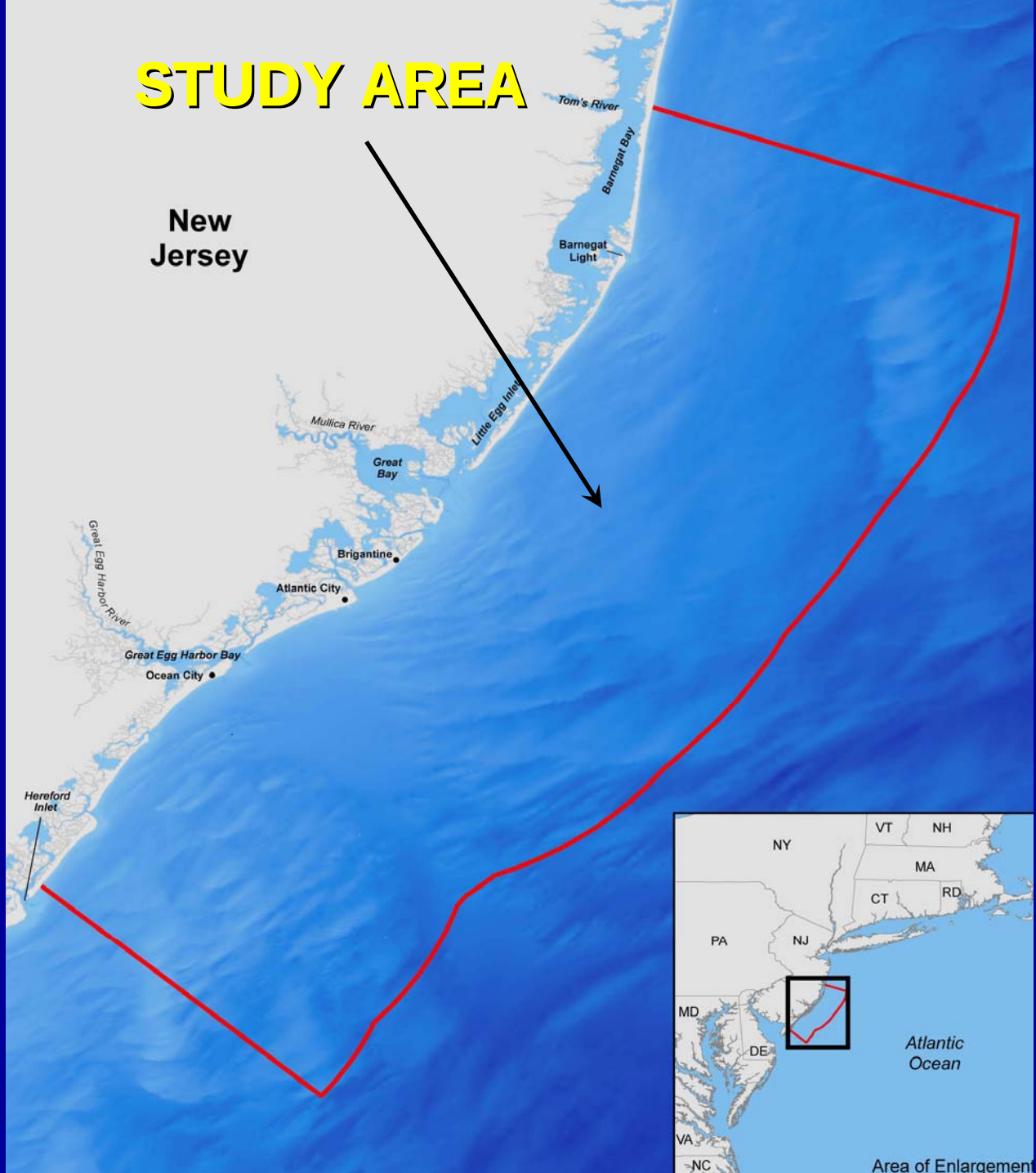
- In the Study Area, what are the abundance, distribution, and utilization of:
  - Bird Species (flight behavior)
  - Marine Mammals
  - Sea Turtles



Specific Objectives

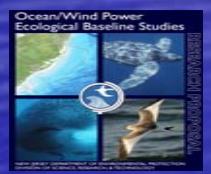
- Using predictive modeling, mapping, and environmental assessment methodologies what portions of the study area are more or less suitable for wind/alternative energy power facilities based on potential ecological/environmental impacts?




STUDY AREA
New Jersey
Tom's River
Barnegat Bay
Barnegat Light
Little Egg Inlet
Mullica River
Great Bay
Great Egg Harbor River
Brigantine
Atlantic City
Great Egg Harbor Bay
Ocean City
Hereford Inlet
NY
VT
NH
MA
CT
RD
PA
NJ
MD
DE
VA
NC
Atlantic Ocean
Area of Enlargement

Field Studies

- Three Primary Surveys:
  - Avian
  - Marine Mammal
  - Sea Turtle
- Supporting Studies:
  - Oceanographic

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R/V Robert E.


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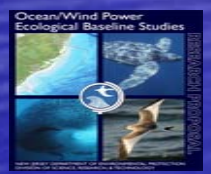
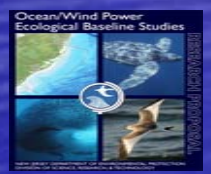
Other Studies

- Literature Review
- Data Compilation-digital and historical
- Model Development
- Impact Assessment
- GIS
- Reporting



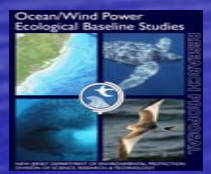
Schedule

- 18-month study
- Field Work: Jan 2008 – June 2009
- Interim Report – January 2009
- Draft Final Report – September 2009
- Final Report – December 2009



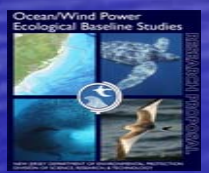
Overall Process

- Technical Review Committee – State & Federal Agencies
- Peer Review Group – Independent Review
- Interested Party Group
  - Periodic informational meetings



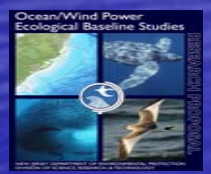
Project Status

- 14 months of surveys (78%) complete
- 4 months remaining
- Literature Review ongoing
- Data compilation and analysis continuing
- Preliminary Data



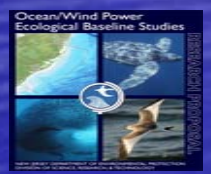
Interim Report

- Data Compilation - Summary of 2008 Data
- Preliminary Analyses – INTERIM, NOT FINAL!!
- Spatiotemporal Modeling
- Reviewed by TRC and Peer Review Group
- Mechanism to provide input for Final Report



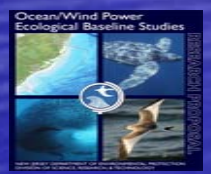
Interim Report Summary

- Detected 110 bird species
- 10 Marine Mammal/Turtle Species inc. 5 T/E Species:
  - North Atlantic Right Whale
  - Fin Whale: *detected in all seasons
  - Humpback Whale
  - Loggerhead Turtle
  - Leatherback Turtle



Interim Report Summary (cont)

- Extensive Fisheries Section
- Description of Predictive Modeling and Data Analysis
- Data will be used in Final Report to address Study Area suitability issues
- Data are fulfilling Project Objectives!



Nocturnal Bird Movements off Atlantic City

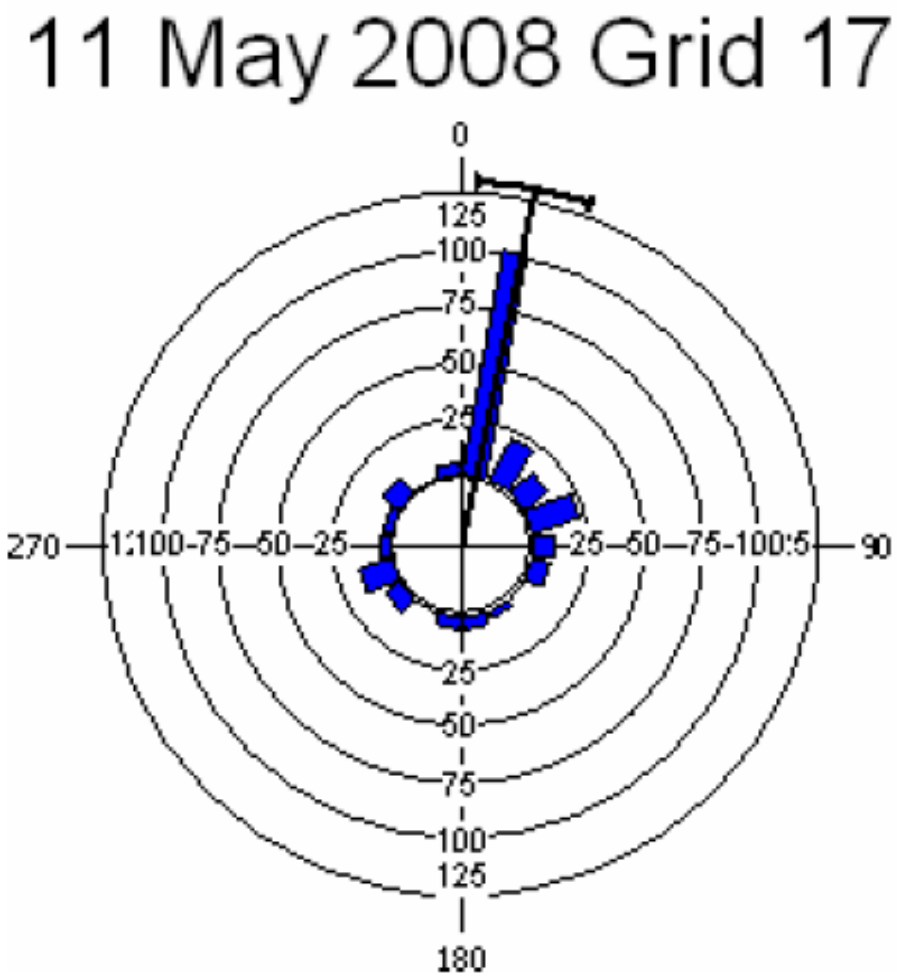
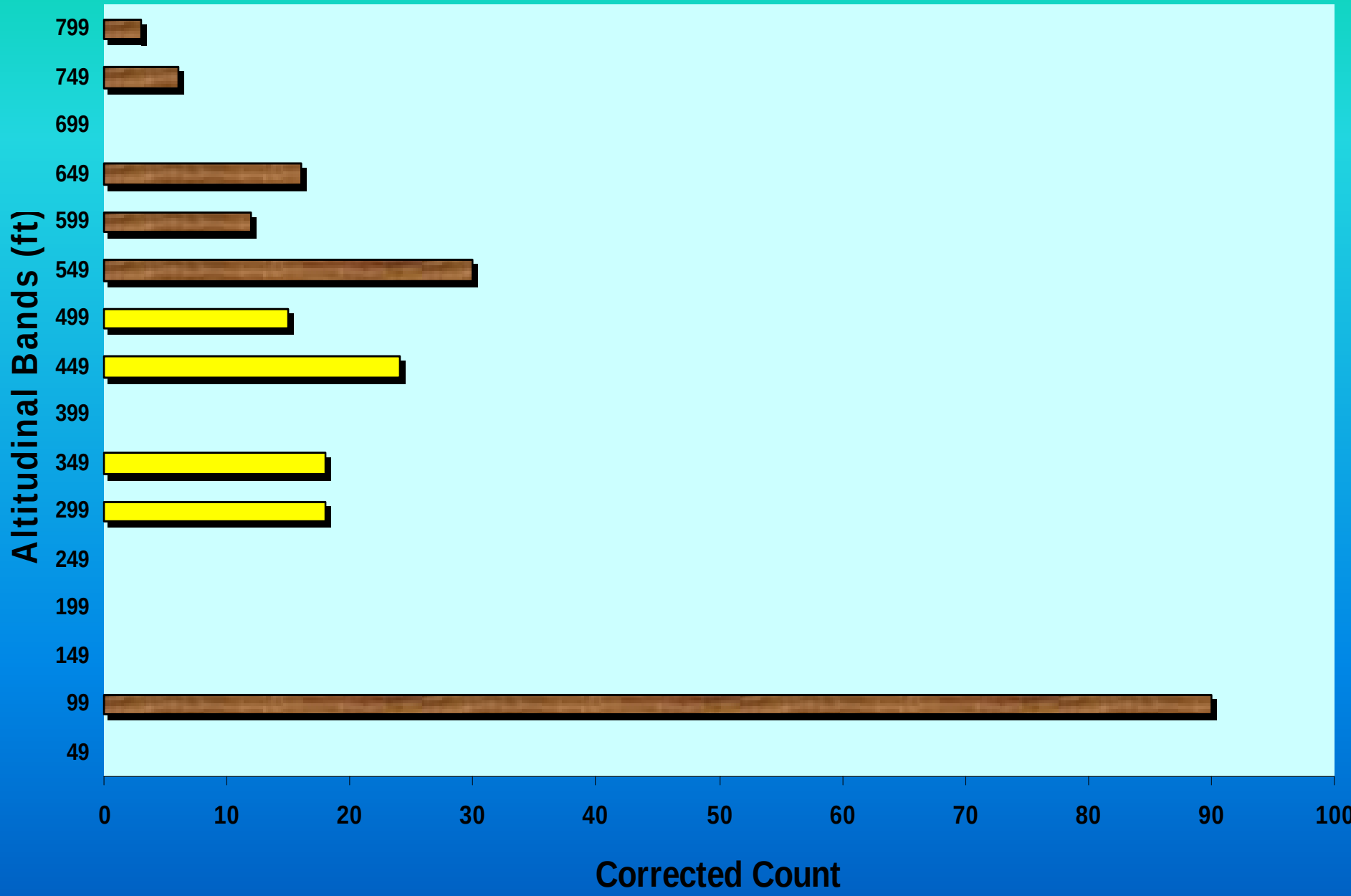
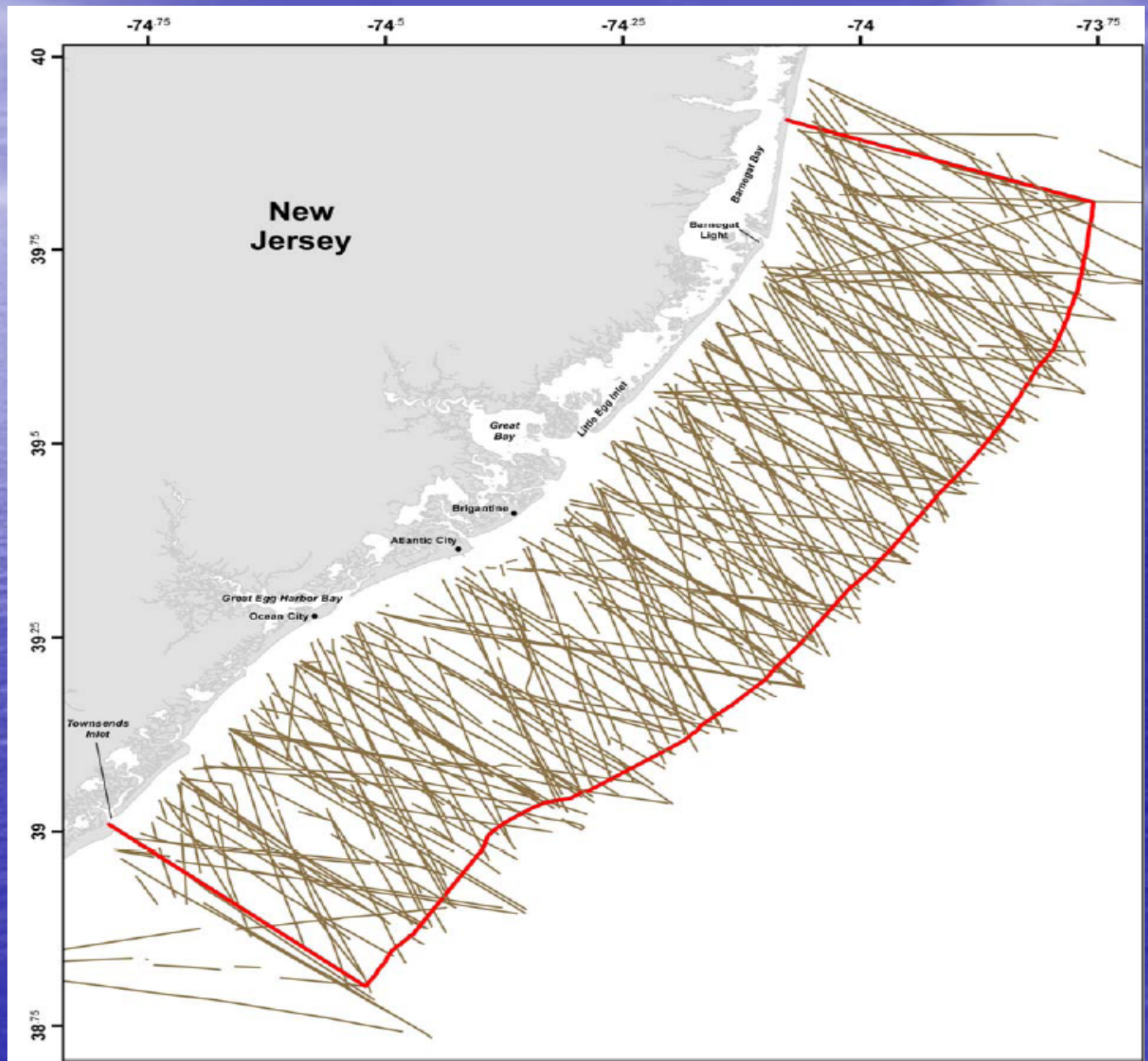


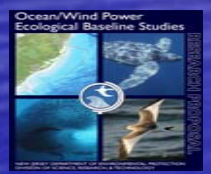
Figure 6-20. Circular diagram showing the direction of nocturnal bird movements through the TI/VPR field of view on 11 May 2008. The dark line is the mean angle and the arc at the end is the 95% confidence limits of the mean.

Example Data: Birds in Altitudinal Bands at Night (TI/VPR)



Marine Mammal/Sea Turtle Surveys





Geo-Marine, Inc.

- Acknowledgement of Project Team
- Dr. Dan Wilkinson – GMI Project Manager
- Interim Report Presentations